

**REMARKS**

An excess claim fee payment letter is submitted herewith for eight (8) excess independent claims and nine (9) excess total claims.

Claims 1 and 3-36 are all the claims presently pending in the application.

Claims 1, 4, 21, 22, 25, and 26 are amended to incorporate the subject matter of claim 2, which correspondingly is canceled without prejudice or disclaimer. Claims 1 and 3-26 also have been amended to define more clearly the features of the invention. Claims 18-20 are rewritten in independent form.

Claims 27-36 have been added to provide varied protection for the present invention and to claim additional features of the invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 2-20 and 22-26 stand rejected upon informalities (e.g., 35 U.S.C. § 112, second paragraph). Claims 1, 4, 21, 22, 25 and 26 stand rejected on prior art grounds, under 35 U.S.C. § 102(e), as being anticipated by Davidovici, et al. (U.S. Patent No. 6,393,049 B1; hereinafter "Davidovici") and as being anticipated by Moon (U.S. Patent No. 6,539,047 B1).

These rejections are respectfully traversed in the following discussion.

**I. THE CLAIMED INVENTION**

The claimed invention is directed to a correlator that receives an input signal including a fixed pattern formed by spreading a predetermined number of symbols including a fixed word, with pseudorandom noise code.

In the illustrative, non-limiting embodiment of the invention as defined by

independent claim 1, the correlator includes a first sub-correlator and a second sub-correlator, wherein the first sub-correlator detects correlation between the input signal and the pseudorandom noise code for one symbol length, and the second sub-correlator detects correlation between a correlation value output from the first sub-correlator and the fixed word for the predetermined number of symbols, and wherein the second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of the fixed word.

In another exemplary embodiment of the invention as defined by independent claim 4, the correlator includes a first sub-correlator that receives a fixed pattern including a code length  $N$  ( $N = M \times K$ ), as an input signal comprised of signals obtained by spreading a fixed word having a length of  $K$  symbols, at a rate of  $M$  chips/symbol, and detects a correlation value between a  $k$ -th ( $0 < k < K$ ) symbol including an  $M$  chip length, among said fixed pattern, and pseudorandom noise code  $S_m$ , wherein  $m$  includes an integer defined as  $k \times M < m < (k + 1) \times M$  and  $M$  and  $K$  include predetermined positive integers, and a second sub-correlator that receives data corresponding to  $K$  symbols, including a correlation value output from the first sub-correlator, and outputs a correlation value between the data and the fixed word, wherein the second sub-correlator comprises a plurality of second sub-correlators a number of which is determined in accordance with types of the fixed word.

Independent claims 5, 6, and 21-28, 29, 30, and 36 disclose similar exemplary embodiments of the invention.

Conventional correlators are large in size, thereby consuming high levels of power and resulting in higher fabrication costs, which are disadvantageous in mobile terminal devices such as CDMA cellular phones (e.g., see specification at page 4, lines 8-13). While other conventional correlators include a smaller number of multipliers, thereby minimizing the size of the correlator, these conventional correlators take a longer time to calculate a correlation value than the larger, conventional correlators (e.g., see specification at page 5, lines 6-10).

The claimed invention, on the other hand, provides a correlator including a simple circuit structure with a reduced circuit size, thereby decreasing the size of the correlator hardware. The claimed invention is adaptive to a plurality of fixed patterns for establishing synchronization and has a lower power consumption and lower cost than conventional correlators (e.g., see specification at page 5, lines 23-28).

## **II. THE 35 USC §112, SECOND PARAGRAPH REJECTION**

Claims 2-20 and 22-26 stand rejected under 35 U.S.C. §112, second paragraph. The claims have been amended to define more clearly the features of the present invention.

Applicants note that, as set forth above, claim 2 is incorporated into independent claims 1, 4, 21, 22, 25, and 26. Thus, the incorporated language of claim 2 is amended in these respective claims to overcome the rejection under 35 U.S.C. § 112, second paragraph, as applied to claim 2.

Applicants submit that a person of ordinary skill in the art clearly would know the metes and bounds of the subject matter of claims 3-20 and 22-26.

In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw this rejection.

## **III. CLAIM REJECTIONS BASED ON PRIOR ART GROUNDS**

Claims 1, 4, 21, 22, 25 and 26 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Davidovici. Claims 1, 4, 21, 22, 25 and 26 also stand rejected under 35 U.S.C. § 102(e) as being anticipated by Moon.

As mentioned above, the subject matter of claim 2 (which has not been rejected on prior art grounds) is incorporated into independent claims 1, 4, 21, 22, 25, and 26.

Thus, Applicants respectfully submit that neither Davidovici nor Moon, alone or in combination, discloses or suggests all of the features of independent claims 1, 4, 21, 22, 25, and 26, and therefore, Applicants respectfully request that the Examiner

withdraw these rejections and permit these claims to pass to allowance.

#### **IV. FORMAL MATTERS AND CONCLUSION**

Minor errors have been corrected in the disclosure.

The Office Action objects to Figures 1(c), 7 and 8. Figures 1(c), 7 and 8 are amended herewith to include the designation "Prior Art", as suggested by the Examiner.

Figure 1(b) is amended to include reference numerals 12 and 22 (i.e., correlation value 12 and correlation value 22), as described at page 14, lines 4-14, of the specification. No new matter is added.

The Examiner is requested to acknowledge receipt of, and accept, the replacement drawings sheets attached herewith.

The Office Action objects to the Abstract and the disclosure of the present application. The Abstract and disclosure are amended herewith to obviate these objections, and therefore, withdrawal of these objections respectfully is requested.

The Office Action also raises numerous objections to the claims (see Office Action at pages 3-4, numbered paragraphs 5 and 6). Claims 1 and 3-26 are amended herewith to obviate each of the claim objections and to make editorial amendments to conform with U.S. patent practice.

In view of the foregoing, Applicant submits that claims 1 and 3-36, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

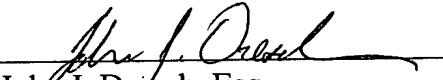
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The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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